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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,624	10/24/2003	James David Frost	62004-1791	1506

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EXAMINER	
RAEVIS, ROBERT R	
ART UNIT	**PAPER NUMBER**
2856	

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/693,624	FROST ET AL.	
	Examiner	Art Unit	
	Robert R. Raevis	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *17* is/are allowed.

6)☒ Claim(s) *1-16 and 18-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-16,18-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claims 1,15, the phrase "independently of the penetrating tip member" (last two lines) is new matter. Consider that the "penetrating tip" (claims 1,15) of the claimed apparatus and method *is necessary* to drive the apparatus into the ground so that the apparatus may be placed into position to obtain an in situ measurement. In addition, the tip the tip *remains attached* to the apparatus when pore pressure measurements are actually made. In fact, the written specification states that the "sensors measure the pore fluid pressure *generated by* the penetrating tip 712" (italics added, p. 27, lines 2-3). Thus, use of the tip *is required* (and is not independent) for the piezo sensor to obtain a measurement of pore pressure. While Applicant has support for an "unstrumented" (as shown in Figure 7) tip, that support does not translate into an independent relationship as claimed. The term "independent" means just that. It means – entirely—independent; and not independent under various circumstances, unless of course those circumstances are so claimed. Applicant seems to be employing a negative limitation (i.e. "independently") from the "unstrumented" basis, when the "uninstrumented" basis may at best provide for use of the limiting term – only – (for example: – wherein the piezo sensor is positioned entirely within the mandrel, and the piezo sensor is capable of obtaining an in situ measurement of pore pressure from only the sensor output --, or something like that). The

Undersigned is not representing that there is support for the presented example, and has not examined such limitation, and merely presents it so that Applicant may be permitted to more easily comprehend why the quoted passage in new matter.

Claims 24-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As to claim 24, how does the sleeve enable ("enables", on line 3 from last; corresponding to "enables", on line 2 from b0ttom of p. 28) the sensor to measure pore fluid pressure? Does the sleeve somehow turn the sensor on? Does the sleeve somehow create a measurable fluid pressure environment? Note that the sensor 702 (in Figure 9) is located *above* the bottom of the mandrel 718 (i.e. sleeve), and thus the sleeve does not appear to effectively prepare the soil to be tested by the sensor in any manner, such tested soil being yet to be disturbed by the sleeve.

Claims 1,2,4-6,8,9,11,15,16,20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kram et al '940 in view of Sidey.

Kram et al teach (Figure 2) an apparatus to determine pore fluid and soil properties, including: tip 24; member 22 coupled to the tip, the member including a pressure sensor 30, wherein the pressure sensor obtains a measurement of pore

pressure. Pressure measurements are made independent of the tip, as fluid being measured passes from the soil to the sensor via a passage 28, and is thus unaffected by the pressure of the tip against either the soil or sensor.

Kram does not call the member a mandrel, does not call the member a module, and does not describe the structure of the sensor.

As to claims 1,15, Kram teaches use of o-rings 44,42 to seal the member, suggestive that the apparatus can benefit from replacement of the o-rings over time to assure sealing, suggestive that the member is interchangeable, and thus a module. In addition, the member 22 is shaped like a shaft and supports a working tip 24, and to that extend may be deemed to be a mandrel. Finally, it would have been obvious to employ any known pore pressure sensor in Kram because Kram's generic teaching of pressure senor 30 is suggestive of any known pore type pressure sensor. Sidey teaches use of a piezo element (col. 3, lines 43-63) to measure pore pressure, suggestive of piezo usage.

As to claim 2, the penetrometer employs wiring and connections to pass power and data within the penetrometer. Also, it is known to utilize pre-amps to convey readable data.

As to claim 4, note load cells 25 and 26.

As to claim 5, note that sensor 30 is adjacent to load cell 26.

As to claims 6,11,16,22, note friction sleeve 22.

As to claims 8,20, Kram relates data to "depth" (col. 3, line 52) measurements.

As to claim 9, note Kram's "on board data acquisition system 21" (col. 3, line 49).

As to claim 20, Kram measures (col. 4, lines 14-16) inclination.

As to claim 21, Kram employs a "digital" (col. 3, line 51) system.

Claims 3,13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kram et al in view of Sidey as applied to claim 1 above, and further in view of Cooper et al.

As to claim 3, it would have been obvious to classify Kram's tip as a CPT tip because it is "used to classify soils and characterize sites" (col. 1, line 14, of Cooper et al.).

As to claim 13, Kram's data acquisition system 21 includes "depth" (col. 3, line 52, and Figure 7) determinations, "inclinometer" (col. 4,line 14), and printer 27/monitor 29 for display of data.

As to claim 14, Kram converts data into "digital" (col. 3, line 51) for storage. Storage of a variety of data parameters into a single memory is routinely done so via MUX components.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kram et al '940 in view of Sidey.

Kram et al teach (Figure 2) an apparatus, including: tip 24; and attachment unit including a pore pressure sensor 30 and friction sleeve 22.

Kram does not call the unit an "attachment module" and does not state that the sensor is of a piezo nature.

As to claim 24, Kram teaches use of o-rings 44,42 to seal the sleeve, suggestive that the apparatus can benefit from replacement of the o-rings over time to assure sealing, suggestive that sleeves is interchangeable, and thus a module. It would have been obvious to employ any known pore pressure sensor in Kram because Kram's generic teaching of pressure senor 30 is suggestive of any known pore type pressure sensor. Sidey teaches use of a piezo element (col. 3, lines 43-63) to measure pore pressure, suggestive of piezo usage. Finally, the sensor can measure pore pressure only after the apparatus is driven into the ground by application of a vertical force on the sleeve 22, such force necessarily driving the tip into the ground. As the tip is driven into the ground, there is shearing between the tip and soil, such shearing disturbing the soil around the aperture 28, and allowing the sensor to effectively measure port fluid at the region.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert R. Raevis whose telephone number is 571-272-2204. The examiner can normally be reached on Monday to Friday from 7am to 4pm. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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